

WHAT IS CLAIMED IS:

1. A method for producing a plurality of polymeric foamed material structures having brace-receiving configurations comprising the steps of:

(a) providing a block of polymeric foamed material;

(b) cutting the polymeric foamed material of step (a) with a plurality of cutters until each cutter reaches a respective preconfiguration cut point;

(c) cutting subsequently with each cutter from the respective preconfiguration cut point of each cutter a respective brace-receiving configuration in the polymeric foamed material; and

(d) cutting, after said cutting step (c), the polymeric foamed material of step (c) with said plurality of cutters to produce a plurality of polymeric foamed material structures, each of said polymeric foamed material structures having a brace-receiving configuration.

2. The method of claim 1 wherein said cutting in step (b), said cutting in step (c), and said cutting in step (d) is with a plurality of laser cutters.

3. The method of claim 1 wherein said cutting in step (b), said cutting in step (c), and said cutting in step (d) is with a plurality of hot wire cutters.

4. The method of claim 1 wherein said polymeric foamed material is generally stationary.

5. The method of claim 2 wherein said polymeric foamed material is generally stationary.

6. The method of claim 3 wherein said polymeric foamed material is generally stationary.

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1 7. The method of claim 1 additionally comprising
2 cutting with each cutter, prior to said cutting step (d), a
3 respective polymeric foamed material opening in the polymeric
4 foamed material such that each polymeric foamed material
5 structure has a polymeric foamed material opening to define a
6 chase.

1 8. The method of claim 2 additionally comprising
2 cutting with each cutter, prior to said cutting step (d), a
3 respective polymeric foamed material opening in the polymeric
4 foamed material such that each polymeric foamed material
5 structure has a polymeric foamed material opening to define a
6 chase.

1 9. The method of claim 3 additionally comprising
2 cutting with each cutter, prior to said cutting step (d), a
3 respective polymeric foamed material opening in the polymeric
4 foamed material such that each polymeric foamed material
5 structure has a polymeric foamed material opening to define a
6 chase.

1 10. The method of claim 6 additionally comprising
2 cutting with each cutter, prior to said cutting step (d), a
3 respective polymeric foamed material opening in the polymeric
4 foamed material such that each polymeric foamed material
5 structure has a polymeric foamed material opening to define a
6 chase.

1 11. The method of claim 10 wherein said polymeric
2 foamed material comprises expanded polystyrene (EPS).

1 12. The method of claim 1 wherein said brace-
2 receiving configuration in each of said polymeric foamed
3 material structures is a non-linear brace-receiving
4 configuration.

1 13. The method of claim 3 wherein said brace-
2 receiving configuration in each of said polymeric foamed

material structures is a non-linear brace-receiving configuration.

14. The method of claim 4 wherein said brace-receiving configuration in each of said polymeric foamed material structures is a non-linear brace-receiving configuration.

15. The method of claim 11 wherein said brace-receiving configuration in each of said polymeric foamed material structures is a non-linear brace-receiving configuration.

16. The method of claim 1 additionally comprising computer operating said plurality of cutters.

17. The method of claim 3 additionally comprising computer operating said plurality of hot wire cutters.

18. The method of claim 6 additionally comprising computer operating said plurality of hot wire cutters.

19. A method for producing a plurality of polymeric foamed material panels comprising the steps of:

(a) providing a block of polymeric foamed material;

(b) cutting the polymeric foamed material of step (a) with a plurality of cutters until each cutter reaches a respective preconfiguration cut point;

(c) cutting subsequently with each cutter from the respective preconfiguration cut point of each cutter a respective brace-receiving slot in the polymeric foamed material;

(d) cutting, after said cutting step (c), the polymeric foamed material of step (c) with said plurality of cutters to produce a plurality of polymeric foamed material structures having a plurality of brace-receiving slots; and

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(e) sliding a plurality of brace members into the brace-receiving slots of the polymeric foamed material structures of step (d) to produce a plurality of polymeric foamed material panels, each of said polymeric foamed material panels having at least one of said brace members.

20. The method of claim 19 wherein a portion of said at least one of said brace members protrudes from each of said polymeric foamed material panels.

21. The method of claim 19 wherein each of said brace members includes brace sides, and said brace sides of each of said brace members are surrounded by polymeric foamed material.

22. The method of claim 19 wherein said plurality cutters are hot wire cutters.

23. The method of claim 19 wherein said plurality cutters are laser cutters.

24. The method of claim 19 wherein said polymeric foamed material is generally stationary.

25. The method of claim 22 wherein said polymeric foamed material is generally stationary.

26. The method of claim 19 wherein said brace-receiving slots in said polymeric foamed material panels are non-linear brace-receiving slots.

27. The method of claim 22 wherein said brace-receiving slots in said polymeric foamed material panels are non-linear brace-receiving slots.

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1 28. The method of claim 25 wherein said brace-
2 receiving slots in said polymeric foamed material panels are
3 non-linear brace-receiving slots.

1 29. The method of claim 19 additionally comprising
2 computer operating said plurality of cutters.

1 30. The method of claim 22 additionally comprising
2 computer operating said hot wire cutters.

1 31. The method of claim 28 additionally comprising
2 computer operating said hot wire cutters.

1 32. The method of claim 19 wherein each of said
2 brace members comprises a web, a first flange integrally bound
3 to said web, and a second flange integrally bound to said web.

1 33. The method of claim 32 wherein said sliding
2 step (e) further comprises sliding said first flange and a
3 portion of said web of respective brace members into
4 respective brace-receiving slots of said polymeric foamed
5 material structures to produce said plurality of polymeric
6 foamed material panels, each of said polymeric foamed material
7 panels having said second flange and a portion of said web of
8 at least one of said brace members disposed outside thereof.

1 34. The method of claim 32 wherein each of said
2 brace members comprises a web, a first flange integrally bound
3 to said web, a first flange return integrally bound to said
4 first flange, a second flange integrally bound to said web,
5 and a second flange return integrally bound to said second
6 flange.

1 35. The method of claim 34 wherein said sliding
2 step (e) further comprises sliding said first flange and said
3 first flange return and a portion of said web of respective
4 brace members into respective brace-receiving slots of said
5 polymeric foamed material structures to produce said plurality

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6 of polymeric foamed material panels, each of said polymeric
7 foamed material panels having said second flange and said
8 second flange return and a portion of said web of at least one
9 of said brace members disposed outside thereof.

1 36. A method for producing a plurality of polymeric
2 foamed material structures having slots for receiving stud
3 members comprising the steps of:

4 (a) cutting a polymeric foamed material with a
5 plurality of cutters in a first direction;

6 (b) cutting subsequently in a second direction
7 the polymeric foamed material of step (a) with the
8 plurality of cutters until each cutter forms a first
9 respective slot in the polymeric foamed material;

10 (c) cutting, after said cutting step (b), in
11 said first direction the polymeric foamed material of
12 step (b) with the plurality of cutters to produce a
13 plurality of polymeric foamed material structures having
14 a plurality of first slots.

1 37. The method of claim 36 additionally comprising
2 cutting, prior to said cutting step (c), the polymeric foamed
3 material of step (b) with the plurality of cutters until each
4 cutter forms a second respective slot in the polymeric foamed
5 material.

1 38. The method of claim 36 additionally comprising
2 cutting, prior to said cutting step (c), the polymeric foamed
3 material of step (b) with the plurality of cutters until each
4 cutter forms a respective recess in the polymeric foamed
5 material; and subsequently cutting, prior to said cutting step
6 (c), the polymeric foamed material with the plurality of
7 cutters until each cutter forms a second respective slot in
8 the polymeric foamed material such that after said cutting
9 step (c), a plurality of polymeric foamed material structures
10 are produced having a plurality of first slots and a plurality
11 of second slots and a plurality of recesses.

1 40. The method of claim 39 additionally comprising
2 sliding said stud members into said first and second slots and
3 into said recesses of said polymeric foamed material
4 structures.

1 42. The method of claim 41 wherein said web, said
2 second flange and said second flange return of each of said
3 stud members occupies one of said second slots of said
4 polymeric foamed material structures.

1 44. The method of claim 36 wherein said cutters are
2 laser cutters.

1 46. The method of claim 36 wherein said polymeric
2 foamed material is generally stationary.

1 48. The method of claim 43 additionally comprising
2 computer operating said plurality of hot wire cutter.

1 49. A method for producing a plurality of polymeric
2 foamed material structures having slots for receiving stud
3 members comprising the steps of:

4 (a) cutting a polymeric foamed material with a
5 plurality of cutters in a first direction until each of
6 said cutters has moved a respective first distance in the
7 polymeric foamed material;

8 (b) cutting subsequently with the plurality of
9 cutters in a second direction the polymeric foamed
10 material of step (a) until each of said cutters has moved
11 a respective second distance in the polymeric foamed
12 material of step (a);

13 (c) cutting subsequently with the plurality of
14 cutters in said first direction the polymeric foamed
15 material of step (b) until each of said cutters has moved
16 a respective third distance in the polymeric foamed
17 material of step (b);

18 (d) cutting subsequently with the plurality of
19 cutters in a third direction the polymeric foamed
20 material of step (c) until each of said cutters has moved
21 a respective fourth distance in the polymeric foamed
22 material of step (c);

23 (e) cutting subsequently with the plurality of
24 cutters in said first direction the polymeric foamed
25 material of step (d) until each of said cutters has moved
26 a respective fifth distance in the polymeric foamed
27 material of step (d);

28 (f) cutting subsequently with the plurality of
29 cutters in said second direction the polymeric foamed
30 material of step (e) until each of said cutters has moved
31 a respective sixth distance in the polymeric foamed
32 material of step (e);

33 (g) cutting subsequently with the plurality of
34 cutters in a fourth direction the polymeric foamed
35 material of step (f) until each of said cutters has moved

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36 a respective seventh distance in the polymeric foamed
37 material of step (f);

38 (h) cutting subsequently with the plurality of
39 cutters in said third direction the polymeric foamed
40 material of step (g) until each of said cutters has moved
41 a respective eighth distance in the polymeric foamed
42 material of step (g);

43 (i) cutting subsequently with the plurality of
44 cutters in said fourth direction the polymeric foamed
45 material of step (h) until each of said cutters has moved
46 a respective ninth distance in the polymeric foamed
47 material of step (h);

48 (j) cutting subsequently with the plurality of
49 cutters in said second direction the polymeric foamed
50 material of step (i) until each of said cutters has moved
51 a respective tenth distance in the polymeric foamed
52 material of step (i);

53 (k) cutting subsequently with the plurality of
54 cutters in said first direction the polymeric foamed
55 material of step (j) until each of said cutters has moved
56 a respective eleventh distance in the polymeric foamed
57 material of step (j);

58 (l) cutting subsequently with the plurality of
59 cutters in said third direction the polymeric foamed
60 material of step (k) until each of said cutters has moved
61 a respective twelfth distance in the polymeric foamed
62 material of step (k); and

63 (m) cutting, after said cutting step (l), in
64 said first direction the polymeric foamed material of
65 step (l) with the plurality of cutters to produce a
66 plurality of polymeric foamed material structures having
67 a plurality of slots.

1 50. The method of claim 49 wherein said respective
2 third distance and said respective eighth distance are
3 approximately equal.

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1 51. The method of claim 49 wherein said respective
2 fifth distance and said respective seventh distance are
3 approximately equal.

1 52. The method of claim 49 wherein said respective
2 fourth distance is generally less than said respective second
3 distance.

1 53. The method of claim 49 wherein said respective
2 eighth distance is generally less than said respective tenth
3 distance.

1 54. The method of claim 49 wherein said third
2 direction is generally opposite to said second direction.

1 55. The method of claim 49 wherein said fourth
2 direction is generally opposite to said first direction.

1 56. The method of claim 50 wherein said plurality
2 of cutters are hot wire cutters, each of said hot wire cutters
3 include a wire diameter with a generally known diameter
4 measurement which generally equals said respective third
5 distance and said respective eighth distance.

1 57. The method of claim 56 additionally comprising
2 computer operating said plurality of hot wire cutters.

3 58. The method of claim 49 wherein said plurality
4 of cutters generally move in unison.

1 59. The method of claim 57 wherein said plurality
2 of hot wire cutters generally move in unison.

1 60. A method for producing a plurality of polymeric
2 foamed material structures comprising the steps of:

3 (a) cutting a polymeric foamed material with a
4 plurality of cutters until each cutter reaches a
5 respective first cut point;

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6 (b) cutting subsequently with each cutter from
7 the respective first cut point a respective path in the
8 polymeric foamed material of step (a) until each cutter
9 reaches a respective second cut point;

10 (c) moving each of said plurality of cutters
11 from said respective second cut point to a respective
12 off-set position in the polymeric foamed material of step
13 (b);

14 (d) retracing generally with each cutter said
15 respective path of each cutter, while each cutter remains
16 in said respective off-set position of step (c) such that
17 a respective slot is formed by each cutter in the
18 polymeric foamed material of step (c); and

19 (e) cutting the polymeric foamed material of
20 step (d) with the plurality of cutters until the cutters
21 have cut through the polymeric foamed material of step
22 (d), producing a plurality of polymeric foamed material
23 structures having slots.

660T "CHASE" 1 61. The method of claim 60 additionally comprising
2 cutting with said plurality of cutters track chases in the
3 polymeric foamed material structures of step (e) such that
4 each of said plurality of polymeric foamed material structures
5 additionally includes a track chase.

1 62. The method of claim 60 wherein said plurality
2 of cutters is a plurality of hot wire cutters.

1 63. The method of claim 61 wherein said plurality
2 of cutters is a plurality of hot wire cutters.

1 64. The method of claim 62 additionally comprising
2 computer operating said hot wire cutters.

1 65. The method of claim 63 additionally comprising
2 computer operating said hot wire cutters.

66. The method of claim 60 wherein said plurality of cutters is a plurality of laser cutters.

67. A method for producing a plurality of polymeric foamed material structures having brace-receiving slots comprising the steps of:

(a) providing a block of polymeric foamed material; and

(b) moving a plurality of cutters through the block of polymeric foamed material in a first direction of travel, while interrupting at least one time the moving of the plurality of cutters in said first direction of travel to move the cutters through the block of polymeric foamed material in at least one direction of travel which differs from said first direction of travel, such that each cutter produces a respective brace-receiving slot in the polymeric foamed material, until said plurality of cutters have moved completely through the block of polymeric foamed material to produce a plurality of polymeric foamed material structures with each structure having at least one brace-receiving slot.

68. A method for producing a plurality of polymeric foamed material structures having brace-receiving slots comprising the steps of:

(a) providing a block of polymeric foamed material in a generally stationary position;

(b) moving a plurality of cutters through the generally stationary block of polymeric foamed material of step (a) in a first direction of travel;

(c) interrupting the movement of the plurality of cutters from said first direction of travel through the generally stationary blocks of polymeric foamed material to move the cutters in at least one direction of travel which differs from said first direction of travel such that each cutter produces a respective brace-receiving slot in the polymeric foamed material; and

16 (d) continuing said moving step (b) of said
17 plurality of cutters in said first direction of travel,
18 while intermittently interrupting the movement of the
19 plurality of cutters from said first direction of travel
20 to move the cutters in at least one direction of travel
21 which differs from said first direction of travel such
22 that each cutter produces at least one additional
23 respective brace-receiving slot in the polymeric foamed
24 material, until said plurality of cutters have moved
25 completely through the generally stationary block of
26 polymeric foamed material after which a plurality of
27 polymeric foamed material structures are produced with
28 each polymeric foamed material structure having a
29 plurality of brace-receiving slots.

1 69. A method for producing a plurality of polymeric
2 foamed material panels comprising the steps of:

3 • (a) cutting a polymeric foamed material in a
4 first direction with a plurality of cutters generally
5 moving in unison;

6 (b) cutting subsequently the polymeric foamed
7 material of step (a) in a second direction with said
8 plurality of cutters generally moving in unison;

9 (c) cutting, after said cutting step (b), the
10 polymeric foamed material of step (b) in said first
11 direction with said plurality of cutters generally moving
12 in unison;

13 (d) cutting, after said cutting step (c), the
14 polymeric foamed material of step (c) in a third
15 direction with said plurality of cutters generally moving
16 in unison wherein said third direction is generally
17 opposite to said second direction;

18 (e) cutting, after said cutting step (d), the
19 polymeric foamed material of step (d) in said first
20 direction with said plurality of cutters generally moving
21 in unison until said cutters have cut through the
22 polymeric foamed material of step (d) to produce a

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23 plurality of polymeric foamed material structures having
24 brace-receiving configurations; and

25 (f) sliding brace members into the brace-
26 receiving configurations of said polymeric foamed
27 material structures of step (e) to produce a plurality of
28 polymeric foamed material panels with each polymeric
29 foamed material panel having one of said brace members.

1 70. A method for producing a polymeric foamed
2 material structure having a slot comprising the steps of:

3 (a) cutting with a cutter a polymeric foamed
4 material until reaching a preslot cut point;

5 (b) cutting subsequently a first path in the
6 polymeric foamed material with the cutter from the
7 preslot cut point until reaching a first cut point;

8 (c) moving the cutter in the polymeric foamed
9 material of step (b) a predetermined distance from the
10 first cut point to a second cut point; and

11 (d) cutting subsequently from the second cut
12 point a second path in the polymeric foamed material of
13 step (c) with the cutter until the cutter reaches a
14 postslot cut point to produce a polymeric foamed material
15 structure having a slot.

1 71. The method of claim 70 wherein said slot of
2 step (d) has a width equal to about twice said predetermined
3 distance of step (c).

1 72. The method of claim 70 wherein said cutter is a
2 hot wire cutter having a wire diameter with a generally known
3 diameter measurement, and said slot of step (d) has a width
4 equal to about twice the generally known diameter measurement
5 of the wire diameter.

1 73. The method of claim 72 additionally comprising
2 computer operating said hot wire cutter.

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1 74. The method of claim 70 additionally comprising
2 sliding a stud member into said slot of step (d).

1 75. The method of claim 73 additionally comprising
2 sliding a stud member into said slot of step (d).

1 76. A method for producing at least one polymeric
2 foamed material structure having at least one slot comprising
3 the steps of:

- 4 (a) providing at least one cutter;
5 (b) cutting with the cutter of step (a) a
6 polymeric foamed material until the cutter reaches at
7 least one respective preslot cut point;
8 (c) cutting subsequently with cutter from the
9 respective preslot cut point of step (b) at least one
10 respective path in the polymeric foamed material of step
11 (b) until the cutter reaches at least one first cut
12 point;
13 (d) forming with the cutter in the polymeric
14 foamed material of step (c) at least one respective off-
15 set path communicating with the respective path of step
16 (c) to form at least one slot within the polymeric foamed
17 material of step (c); and
18 (e) cutting subsequently the polymeric foamed
19 material of step (d) with the cutter until the cutter has
20 cut through the polymeric foamed material of step (d),
21 producing at least one polymeric foamed structure having
22 at least one slot.

1 77. The method of claim 76 wherein said at least
2 one respective path has at least one respective path length,
3 and said at least one respective off-set path communicates
4 with the at least one respective path along the at least one
5 respective path length of the at least one respective path,
6 such that the at least one respective path and the least one
7 respective off-set path together form the at least one slot
8 within the polymeric foamed material of step (c).

1 78. The method of claim 76 wherein said at least
2 one cutter comprises a plurality of hot wire cutters cutting a
3 plurality of respective paths in the polymeric foamed material
4 of step (b) and forming a plurality of respective off-set
5 paths in the polymeric foamed material of step (c), such that
6 the plurality of respective paths and the plurality of
7 respective off-set paths together form a plurality of
8 respective slots in the polymeric foamed material of step (c),
9 and such that, after said cutting step (e) with the plurality
10 of hot wire cutters, a plurality of polymeric foamed
11 structures are produced having a plurality of slots.

1 79. The method of claim 78 additionally comprising
2 sliding a plurality of stud members into the plurality of
3 slots.

1 80. The method of claim 79 additionally comprising
2 computer-operating said plurality of hot wire cutters.

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